



Kansas Administrative Regulations
Kansas Department of Health and Environment

Notice to Reader

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Where possible KDHE will append changed regulations to the appropriate article. Once again, the lack of any attachments should not be construed as meaning there are no revisions.

Nothing contained herein should be construed as legal advice by KDHE. If you are not an attorney, you should secure competent counsel to interpret the regulations and advise you.

Office of Public Information
Kansas Department of Health & Environment

Notes

The *Kansas Register* notes the following changes:

280.64, 280.65, 280.66, and 280.67 as in effect on September 23, 1988 are adopted by reference. (Authorized by and implementing K.S.A. 1989 Supp. 65-34,105; effective Nov. 26, 1990.)

28-44-26. **Out-of-service underground storage tank systems and closure.** 40 CFR 280.70, 280.71, 280.72, 280.73, and 280.74 as in effect on September 23, 1988 are adopted by reference. (Authorized by and implementing K.S.A. 1989 Supp. 65-34,105; effective Nov. 26, 1990.)

28-44-27. **Financial responsibility.** 40 CFR 280.90, 280.91, and 280.93 thru 280.112 as in effect on October 26, 1988 and as amended on November 7, 1988, December 21, 1988, February 3, 1989, November 9, 1989 are adopted by reference except for the following changes:

(a) 40 CFR 280.91 (c) shall read as follows:

“(c) All petroleum marketing firms owning 13-99 USTs at more than one facility; April 26, 1991.”

(b) 40 CFR 280.91 (d) shall read as follows:

“(d) All petroleum UST owners not described in paragraphs (a), (b), or (c) of this section, including all local government entities; October 26, 1991.” (Authorized by and implementing K.S.A. 1989 Supp. 65-34,105; effective Nov. 26, 1990.)

28-44-28. **Aboveground storage tank fees.** Fees required by K.A.R. 28-44-29 shall be in the form of a check or money order made payable to the Kansas department of health and environment. (Authorized by and implementing K.S.A. 65-34,105; effective Nov. 22, 1993.)

28-44-29. **Aboveground storage tank operating permit.** (a) Before a permit for an aboveground storage tank can be obtained or renewed, the owner shall comply with the following requirements.

(1) Each aboveground storage tank shall be registered with the department as required by K.S.A. 65-34,104. Registration shall be made on forms provided by the department, and shall include the following information:

(a) Owner's name, address, and telephone number;

(b) facility address or location;

(c) tank status;

(d) tank age;

(e) tank capacity;

(f) tank system construction details; and

(g) product stored.

(2) An annual registration fee of \$10.00 per tank shall be paid to the department by each owner or operator of an aboveground storage tank prior to December 31 of each year; and

(3) A late notice fee of \$10.00 shall be charged for each facility which fails to submit the required fees prior to December 31 of each year.

(b) After March 1, 1994, a regulated substance shall not be placed in an aboveground storage tank unless a valid permit is openly displayed at the facility. (Authorized by and implementing K.S.A. 65-34,105 and 65-34,106; effective Nov. 22, 1993.)

Article 45.—HYDROCARBON STORAGE WELLS AND WELL SYSTEMS

28-45-1. (Authorized by and implementing K.S.A. 65-171d; effective May 1, 1981; revoked May 1, 1984.)

28-45-2. **Definitions:** (a) “Hydrocarbon storage well system” means a well or group of wells and connecting storage cavities which have been created by solutioning or excavation of salt bearing deposits or other geological formations and subsequently developed for the purpose of storing hydrocarbons.

(b) “Production casing” means the casing inside the surface casing that extends into the salt or other geological formations.

(c) “Transportation artery” means any highway, county road, township road, private road, railroad or other such structure which is not owned by the applicant. Excluded from this definition are pipelines and power and communication lines.

(d) “Division of environment” means the division of environment of the department of health and environment.

(e) “Well” means a single unit which includes the wellhead equipment and bore hole of a storage cavity.

(f) “Abnormal loss” means any loss of stored hydrocarbon or brine that is detectable by monitoring of hydrocarbon storage well system pressures or by the observation well network.

(g) “Storage cavity” means a single underground chamber which may be accessed at the surface by one or more wells.

(h) “Well system” means two or more storage wells connected to a central point by product distribution lines. (Authorized by K.S.A. 65-171d; implementing K.S.A. 65-171d; effective May 1, 1981; amended May 1, 1984.)

28-45-3. Permits required for all hydrocarbon storage wells. The construction and use of new wells for the storage of hydrocarbons in cavities developed in subsurface formations by solution or other mining methods shall be prohibited unless a permit for their construction and use is first obtained from the division of environment. The use of storage wells which are active on the effective date of these regulations and for which no permit exists, shall be permitted and allowed to continue if they meet the minimum standards described in K.A.R. 28-45-6 unless otherwise permitted by the division of environment pursuant to K.A.R. 28-45-10. (Authorized by and implementing K.S.A. 65-171d; effective May 1, 1981.)

28-45-4. Applications for new hydrocarbon storage well permits. Applications for permits for new hydrocarbon storage wells shall be submitted in duplicate to the division of environment, on forms obtainable from the division of environment. (Authorized by and implementing K.S.A. 65-171d; effective May 1, 1981.)

28-45-5. Construction and operation of new hydrocarbon storage wells and well systems. (a) Hydrocarbon storage wells shall not be located less than two-hundred fifty (250) feet from other active, inactive or abandoned storage wells or other holes or excavations penetrating the salt section, unless such wells, holes or excavations have been properly plugged, nor less than one-hundred (100) feet from existing surface structures not owned by the applicant, including any transportation artery. In addition, wells within hydrocarbon storage well systems shall be located not less than one-hundred (100) feet from the boundary of the tract or tracts of land in, upon or under which the operator has the right to store hydrocarbons.

(b) New or like new oil field type steel casing shall be set through all freshwater formations and encased in cement from bottom to top by circulating cement through the bottom of the casing to the surface. A second or production string of such casing shall be set into the upper part of the salt formation and encased in cement from bottom to top by circulating cement through the bottom of the casing to the surface or by staging cement behind the casing to the surface. This casing shall extend a minimum of one-hundred five (105) feet into the salt formation to insure the existence of a salt roof having a thickness of at least one-hundred (100) feet above the top of the washed cavity.

Centralizers shall be used to insure that the pipe is centered in the bore hole and shall be spaced not more than one-hundred (100) feet apart. Prior to setting and cementing of the production casing, the mudcake on the bore wall shall be removed by use of a washing method or other method approved by the division of environment. The cement for that part of the casing opposite a salt formation shall be prepared with salt-saturated cementing material approved by the department.

(c) During the drilling of a hydrocarbon storage well, the vertical bore hole deviation shall not exceed one and one half (1.5) degrees of plumb.

(d) Directionally sought communication with other wells within a hydrocarbon storage well system by fracturing or hydrofrac methods is prohibited. (Authorized by and implementing K.S.A. 65-171d; effective May 1, 1981.)

28-45-6. Operation and construction of existing hydrocarbon storage wells. (a) Brine shall not be produced from, and hydrocarbons shall not be stored in, any well within a hydrocarbon storage well system that is operational on the effective date of this regulation, if the well does not meet the minimum standards set forth in subsection (b). Use of any such well shall be discontinued, and the well shall be plugged within one year in accordance with the procedures described in K.A.R. 28-45-8, unless the operational integrity of such a well can be demonstrated to the division of environment pursuant to K.A.R. 28-45-10.

(b) Each well operating on the effective date of this regulation shall meet the following minimum standards:

(1) The production casing of the well, or of each hydrocarbon storage well, shall extend at least 50 feet into the salt deposit.

(2) There shall be no interconnection between wells within a hydrocarbon storage well system in the upper 50 feet of the salt deposit.

(3) There shall be no leaks or losses of fluid behind the production casing or surface pipe of a well or of any well within a well system. (Authorized by K.S.A. 65-171d; implementing K.S.A. 65-171d; effective May 1, 1981; amended May 1, 1984.)

28-45-7. Monitoring requirements. (a) The position and thickness of the salt roof of each hydrocarbon storage well developed in salt formations shall be checked every five (5) years or every two (2) years if freshwater is used for product displacement. Gamma-ray density logs,

gamma-ray neutron logs or other methods which have been approved by the division of environment shall be used for this purpose. A report of the method used and the results of the test shall be submitted to the division of environment within thirty (30) days of the test completion. After reviewing the test results, the secretary may approve the continued operation of the well, require additional tests, order modifications of the well, or require the abandonment of the well if it cannot be brought into conformance. The division of environment may require more frequent checks for salt roof thickness if it has reason to believe that such checks are necessary.

(b) Records of the volumes of product injected and withdrawn, and the maximum and minimum pressures encountered during injection and withdrawal of hydrocarbons shall be maintained for each well or well system. Those records shall be subject to inspection upon the request of a representative of the division of environment. A report shall be filed annually with the division of environment showing:

(1) The injection-withdrawal volumes for each hydrocarbon storage well or well system.

(2) A summary of the maximum and minimum product storage pressures.

(c) Whenever an abnormal loss of stored hydrocarbon products has occurred or the monitoring system indicates that leakage has occurred, the person in control of the premises shall immediately report the abnormal loss or leakage to the division of environment by telephone and confirm the report by letter if such is requested by the division of environment.

(d) A record of the type of product stored in each cavity shall be maintained and made available for review by division of environment personnel during reasonable hours. The division of environment shall be notified of any change in the type of product stored and the amount of cavity pressure used to store that product.

(e) Hydrocarbon storage wells shall be checked to determine the dimensions and configuration of the cavity by use of sonar caliper or other surveying method approved by the division of environment.

(1) Such surveys will be required when one of the following conditions exist:

(A) When the storage capacity has reached one hundred twenty thousand (120,000) barrels;

(B) After development of each eighty thousand (80,000) barrels of additional storage; or

(C) When the amount of salt roof thickness overlying a storage cavity is such that the dimensions of the cavity would have a bearing on the continued stability of overburden.

(2) A schedule for such survey shall be approved by the division of environment.

(3) The results of the tests including logs shall be submitted to the division of environment within thirty (30) days of test completion.

(f) Surface changes that result from the storage operation shall be monitored by establishing surface monuments in each well field and surrounding area and biennially determining the surface elevation of each monument. The number, location and construction of monuments required for each well field shall be approved by the division of environment. The division of environment shall notify the operator, by mail, of the approval. Precise level measurements of the third order accuracy are to be made at the time the well is first operated and thereafter biennially, by a licensed professional land surveyor or professional engineer licensed to practice in Kansas, and the results reported to the division of environment. Such level measurements are to be in conformance with methods as described in the report entitled "classification, standards of accuracy, and general specifications of geodetic control surveys," prepared by federal geodetic control committee, and dated February 1974. A copy of said report shall be made available on request to the division of environment. A fee per page, at the rate established pursuant to K.S.A. 1980 Supp. 45-204, shall be charged for the copy of the report. Certified and stamped field notes shall be submitted to show that the survey was performed in compliance with this regulation. Biennial survey results shall be reported to the division of environment within thirty (30) days of completion.

(g) Each project boundary shall be outlined with shallow groundwater observation wells located no farther than five hundred (500) feet apart. Each well shall be screened, perforated or slotted above and below the existing water table throughout an interval approved by the division of environment.

(h) Each hydrocarbon storage project shall be equipped with a pattern of deep observation wells which extend a minimum of twenty-five (25) feet into the shale or bedrock underlying all unconsolidated material or at such other depths as are approved. The location and manner of completion

of all such wells shall be approved by the secretary.

(i) Groundwater samples from all observation wells required under the provisions of subsections (g) and (h) of this regulation shall be collected monthly and analysis results on tests for chloride concentration and combustible gas reported to the division of environment quarterly on forms furnished by the division.

(j) All malfunctions and system failures related to overpressuring and noncompliance with the monitoring requirements set forth in subsections (a) through (i) of this regulation shall be reported verbally within twenty-four (24) hours to the division of environment and a written report of the incident shall be filed within five (5) days. The written report shall include the procedure and a time schedule to be followed in correcting and preventing a recurrence of the malfunction, failure or non-compliance. (Authorized by and implementing K.S.A. 65-171d; effective May 1, 1981.)

28-45-8. Abandonment and plugging procedures. A hydrocarbon storage well which has been inactive for three (3) years or longer shall be considered to have been abandoned and shall be plugged unless otherwise authorized by the division of environment. A plan for plugging a well shall be filed with the division of environment as provided in K.A.R. 28-45-9 and shall be updated to reflect any changes in plugging procedure prior to commencing actual work. The plugging of all hydrocarbon storage wells shall be as follows: (a) The cavity in the salt or other formation materials shall be filled with brine or other substance approved by the division of environment. Hydrocarbon storage wells which have not been used to store hydrocarbons for two (2) years or more shall be checked to determine that the brine level extends to the top of the salt section.

(b) If the cavity has been developed in salt, and if a gamma-ray density log or sonic survey has not been run for two (2) years, a gamma-ray density log or sonic survey shall be run prior to plugging to determine the position of the roof.

(c) A plug shall be set at the base of the production casing and the casing filled with cement to the surface, at which point the casing is to be cut and removed unless an alternate method is approved by the division of environment. In the event the production casing has become obstructed and the plug cannot be set at the base of

the production casing, the division of environment shall be immediately notified of the condition and an alternate plugging method shall either be specified or approved by the division of environment prior to initiating any further plugging activities at the well.

(d) The conversion of an abandoned hydrocarbon storage well to an observation well shall be approved by the division of environment if a packer, with tubing to the surface, is set at the bottom of the production casing and an open annulus is included for the purpose of venting the well and monitoring it for the presence of hydrocarbon product or brine. A well having a cavity which is in communication with the cavity of another well shall not qualify as an observation well.

(e) A plugging report with related details shall be submitted to the division of environment within thirty (30) days of completing the plugging operation, on a form supplied by the division.

(f) A map, showing the tri-coordinate location and sea level datum elevation of the remaining wellhead of each well shall be prepared by a licensed professional land surveyor or professional engineer licensed to practice in Kansas, subsequent to the plugging of a well or group of wells. The map shall be submitted to the division of environment within thirty (30) days following the completion of the plugging operation. (Authorized by and implementing K.S.A. 65-171d; effective May 1, 1981.)

28-45-9. Operational plan requirements. A plan for the long term operation of all hydrocarbon storage projects shall be submitted to the division of environment.

(a) For new projects, the operational plan shall be submitted simultaneously with the application for the initial well or group of wells to be drilled, as required by K.A.R. 28-45-4. Each plan shall include the following:

(1) A plot plan showing the location of all wells and a schematic diagram of the gathering line system which connects all wells within the hydrocarbon storage system to a central distribution point;

(2) The location of all deep brine disposal wells and a description of controls to be used to prevent injection of product into the receiving formation;

(3) A description of methods to be used to prevent over-pressuring of wells to the point of lifting or fracturing overburden;

(4) The location, depth, and completion specifications for shallow and deep observation wells

that will be used in monitoring the proposed well or well system for which application is being made; and

(5) A procedure for plugging the well or wells upon final abandonment of the storage cavity.

(b) For existing projects that have an operational plan on file with the department, only the requirements of paragraphs (1) and (4) of subsection (a) shall be submitted with an application for permit for a new well. The requirements of paragraphs (2), (3), and (5) of subsection (a) shall be submitted for approval when any change in operating procedures is proposed.

(c) Within 20 days after receipt of the proposed plan modification, the secretary shall, in writing, approve the plan as amended, or require such modifications as the secretary deems necessary in order to assure that changes in operation will not cause surface or subsurface water pollution or soil pollution. (Authorized by K.S.A. 65-171d; implementing K.S.A. 65-171d; effective May 1, 1981; amended May 1, 1984.)

28-45-10. Waiver of specific requirements. The secretary may grant an exception to one (1) or more requirements provided in these regulations, if the applicant or operator can show good cause for the granting of such an exception, and presents an alternative to the requirement or requirements which will insure that the objectives of these regulations will be achieved. Requests for an exception shall be made, in writing, to the secretary. The secretary shall grant or deny the request within fifteen (15) days of the receipt thereof and shall notify the person requesting the exception, in writing, of the decision. If the request is denied, the secretary will specify in the notice the reasons for the denial of the request. (Authorized by and implementing K.S.A. 65-171d; effective May 1, 1981.)

28-45-11. Hydrocarbon storage wells and well systems; fees. An annual fee of \$1,200 for permitting, monitoring and inspecting hydrocarbon storage wells and well systems shall be paid by each person, firm, association or corporation operating underground hydrocarbon storage facilities in bedded salt deposits. The fee shall be paid by April 1 of each year. Any person, firm, association or corporation who fails to pay the amount due by April 1 shall be subject to permit revocation. (Authorized by and implementing K.S.A 1984 Supp. 65-171d; effective, T-85-7, Feb.

15, 1984; effective May 1, 1984; amended May 1, 1985.)

Article 46.—UNDERGROUND INJECTION CONTROL REGULATIONS

28-46-1. General provisions. (a) Any reference in these rules and regulations to standards, procedures, or requirements of 40 CFR Parts 124, 136, 144, 145, 146 or 261, shall constitute a full adoption by reference of the part, subpart and paragraph so referenced, including any notes, charts and appendices, unless otherwise specifically stated in these rules and regulations. The materials referenced are available at the Kansas department of health and environment, Topeka, Kansas.

(b) When used in any provision adopted from 40 CFR Parts 124, 136, 144, 145, 146 or 261, references to “the United States” shall mean the state of Kansas, “environmental protection agency” shall mean the Kansas department of health and environment, and “administrator,” “regional administrator,” or “director” shall mean the secretary of the department of health and environment.

(c) When existing Kansas statutory and regulatory authority is more stringent than the regulations adopted in subsection (a), the Kansas requirements shall prevail. (Authorized by and implementing K.S.A. 65-171d; effective May 1, 1982; amended, T-86-47, Dec. 19, 1985; amended May 1, 1986; amended March 21, 1994.)

28-46-2. Definitions. (a) 40 CFR 124.2; 40 CFR 144.3, 40 CFR 144.61, 40 CFR 146.3, and 40 CFR 146.61(b), as in effect on April 1, 1993, are adopted by reference.

(b) “Cone of impression” means the mound in the potentiometric surface of the receiving formation in the vicinity of the injection well.

(c) “Cone of influence” means that area around the well within which increased injection pressures caused by injection into the well would be sufficient to drive fluids into an underground source of drinking water (USDW).

(d) “Fracture pressure” means that wellhead pressure which may cause vertical or horizontal fracturing of rock along a well bore.

(e) “Injection well” means a well into which fluids are being injected.

(f) “Injection well facility” means all land, structures, appurtenances or improvements on